

CLAIMS

What is claimed as being new and desired to be protected by LETTERS PATENT of the United States is as follows:

1. A gas delivery, evacuation and respiratory monitoring system for allowing a user to deliver at least one gas and scavenge the exhausted gasses as well as monitor the exhausted gases in a safe and efficient manner comprising, in combination:

a face mask fabricated of a flexible material and having a face recipient area and a continuous side wall area and a dome area forming a continuous surface, with the mask having an upper portion and a lower portion, the dome area being located in the upper portion of the mask with the dome forming a closed portion of the mask and forming a recess therein, the face mask having a nasal portion of a first width and a mouth portion of a second width, the nasal and mouth portions being continuous, with the second width being larger than the first width, the mask having a continuous side-wall portion with the side-wall portion having at least one intake hole there through with the intake hole having an associated flapper valve to permit the passage of a gas into the mask from the surrounding atmosphere and to prevent the gas from within the mask moving into the surrounding atmosphere, the mask having a head strap being coupled to the side wall of the mask to hold the mask in place, the dome area having a fresh-gas inflow tube of a first internal diameter coupled there to with

the inflow tube having an inner portion and an outer portion, the inner portion being coupled to the dome area of the face mask, the outer portion of the fresh-gas inflow tube having a tapered external second diameter to allow the slip-fit there onto, the dome area also having an exhaust-gas outflow tube of a third internal diameter and a fourth external diameter with the fourth diameter being larger than the first and second and third diameters, the exhaust-gas outflow tube having an inner portion and an outer portion with the inner portion being coupled to the dome area of the face mask and the outer portion of the gas outflow tube configured to allow the slip fit there onto, the gas outflow tube also having an exhaust-gas sampling tube of a fifth internal diameter coupled to the inner portion of the exhaust-gas outflow tube, with the fifth diameter being smaller than the first, second, third and fourth diameters, the exhaust-gas sampling tube having an inward end coupled to the exhaust-gas outflow tube and an outward end, the outward end having a male coupling thread;

a fresh gas source having a outflow tube;

a fresh gas supply tube fabricated of a flexible material with the gas supply tube having an inflow end and an outflow end having a second internal diameter, the inflow end being coupled to the outflow tube of the fresh gas source and the outflow end

being coupled to the outer portion of the fresh-gas inflow tube of the face mask;

an exhaust-gas scavenging system having an inflow tube;

an exhaust-gas hose, fabricated of flexible material and having an inflow end and an outflow end with the outflow end being coupled to the inflow tube of the exhaust-gas scavenging system, the inflow end having a fourth internal diameter so as to allow the exhaust-gas hose to be slipped onto and coupled with the outer portion of the exhaust-gas outflow tube;

a carbon-dioxide monitoring device, also known as a capnograph, the device having a sample inflow tube for receiving gas samples; and

a carbon-dioxide sampling tube fabricated of a flexible material having a fifth diameter, the carbon-dioxide sampling tube having an inflow end and an outflow end, the outflow end being operatively coupled to the capnograph sample inflow tube and the inflow end of the carbon-dioxide sampling tube having a female treaded coupler for receiving and coupling with the outward end of the exhaust-gas sampling tube of the mask.

2. A gas delivery, evacuation and respiratory monitoring system comprising, in combination:

a face mask having an inflow flapper valve and a fresh-gas inflow tube and an exhaust-gas outflow tube and a gas sampling tube;

a fresh gas source;

a fresh gas supply tube operative coupling the fresh gas source and the face mask;

an exhaust-gas scavenging system;

an exhaust-gas hose operatively coupling the scavenging system and exhaust-gas outflow tube;

a carbon-dioxide monitoring device, also known as a capnograph; and

a carbon-dioxide sampling tube operative coupling the capnograph and the exhaust-gas sampling tube of the mask.

3. A gas delivery, evacuation and respiratory monitoring system as described in Claim 2 wherein the system further comprises:

a face mask having a pair of face mask strap apertures; and

a face mask strap operatively coupled to the face mask strap apertures.

4. A gas delivery, evacuation and respiratory monitoring system as described in Claim 2 wherein the system further comprises a face mask having at least one inflow valve with the inflow valve comprising a plurality of radially located holes and a centrally located hole with the valve being coupled to the central hole so as to allow passage of gas through the radially placed holes.

5. A gas delivery, evacuation and respiratory monitoring system as described in Claim 2 wherein face mask comprises a face recipient portion and a dome portion, the dome portion being rotatably coupled with the face portion with the dome portion having inflow flapper valve and a fresh-gas inflow tube and an

exhaust-gas outflow tube and a gas sampling tube, the rotation of the dome allowing the fresh-gas inflow tube and exhaust-gas outflow tube to be directed in any azimuthal direction.

6. A method for constructing a gas delivery, evacuation and respiratory monitoring system comprising, in combination:

providing a face mask fabricated of a flexible material and having a face recipient area and a continuous side wall area and a dome area forming a continuous surface, with the mask having an upper portion and a lower portion, the dome area being located in the upper portion of the mask with the dome forming a closed portion of the mask and forming a recess therein, the face mask having a nasal portion of a first width and a mouth portion of a second width, the nasal and mouth portions being continuous, with the second width being larger than the first width, the mask having a continuous side-wall portion with the side-wall portion having at least one intake hole there through with the intake hole having an associated flapper valve to permit the passage of a gas into the mask from the surrounding atmosphere and to prevent the gas from within the mask moving into the surrounding atmosphere, the mask having a head strap being coupled to the side wall of the mask to hold the mask in place, the dome area having a fresh-gas inflow tube of a first internal diameter coupled there to with the inflow tube having an inner portion and an outer portion, the inner portion being coupled to the dome area of the face mask, the outer portion of the fresh-gas inflow tube having a tapered external second diameter to allow the slip-fit there onto, the dome area also having an exhaust-gas outflow

tube of a third internal diameter and a fourth external diameter with the fourth diameter being larger than the first and second and third diameters, the exhaust-gas outflow tube having an inner portion and an outer portion with the inner portion being coupled to the dome area of the face mask and the outer portion of the gas outflow tube configured to allow the slip fit there onto, the gas outflow tube also having an exhaust-gas sampling tube of a fifth internal diameter coupled to the inner portion of the exhaust-gas outflow tube, with the fifth diameter being smaller than the first, second, third and fourth diameters, the exhaust-gas sampling tube having an inward end coupled to the exhaust-gas outflow tube and an outward end, the outward end having a male coupling thread whereby the face mask can fit snugly against the face so as to minimize gas leakage;

providing a fresh gas source having a outflow tube whereby a gas may be provided to the system;

providing a fresh gas supply tube fabricated of a flexible material with the gas supply tube having an inflow end and an outflow end having a second internal diameter, the inflow end being coupled to the outflow tube of the fresh gas source and the outflow end being coupled to the outer portion of the fresh-gas inflow tube of the face mask whereby the fresh gas may be conducted to the face mask, thereby providing a source of fresh gas to the face area;

providing an exhaust-gas scavenging system having an inflow tube whereby a gas may be provided to the system thereby providing a means for the removal of exhausted gas;

providing an exhaust-gas hose, fabricated of flexible material and having an inflow end and an outflow end with the outflow end being coupled to the inflow tube of the exhaust-gas scavenging system, the inflow end having a fourth internal diameter so as to allow the exhaust-gas hose to be slipped onto and coupled with the outer portion of the exhaust-gas outflow tube whereby exhausted gasses are conducted away from the face mask, thereby allowing for the entry of fresh gas into the face mask;

providing a carbon-dioxide monitoring device, also known as a capnograph, the device having a sample inflow tube for receiving gas samples whereby a gas sample may be analyzed, thereby enabling a user to monitor and analyze a gas sample;

providing a carbon-dioxide sampling tube fabricated of a flexible material having a fifth diameter, the carbon-dioxide sampling tube having an inflow end and an outflow end, the outflow end being operatively coupled to the capnograph sample inflow tube and the inflow end of the carbon-dioxide sampling tube having a female treaded coupler for receiving and coupling with the outward end of the exhaust-gas sampling tube of the mask whereby a gas sample is conducted from the exhaust-gas tube to the capnograph for analysis, thereby allowing a breath by breath analysis of carbon dioxide contents in the exhaled gasses, the system being configured to allow the safe administration of a gas to the face mask; and

placing a system on a patient for allowing the system to deliver at least one gas and scavenge the exhausted gasses as

well as monitor the exhausted gases in a safe and efficient manner.